

1      In the Claims

2      ✓ Cancel claims 1-56.

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1      New Claims

A2

2      57. An integrated circuit comprising hemispherical grain platinum.

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4      58. An integrated circuit comprising:

5            a monocrystalline silicon substrate; and

6            a roughened platinum layer over the substrate, the roughened  
7            platinum layer being continuous over an area of the substrate that  
8            comprises at least about  $4 \times 10^6$  square Angstroms and comprising  
9            pedestals that are at least about 300Å tall within the area.

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11      59. The circuit of claim 58 wherein the platinum layer comprises  
12            hemispherical grain platinum.

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14      60. The circuit of claim 58 wherein the area of the substrate  
15            comprises a square.

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17      61. An integrated circuit comprising:

18            a monocrystalline silicon substrate; and

19            a roughened platinum layer over the substrate, the roughened  
20            platinum layer having a continuous surface characterized by columnar  
21            pedestals having heights greater than or equal to about one-third of a  
22            total thickness of the platinum layer.

Aa  
cont.

1        62. The circuit of claim 61 wherein the platinum layer has a  
2        thickness of at least about 600Å.

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4        63. The circuit of claim 61 wherein the platinum layer has a  
5        thickness of greater than or equal to about 400Å.

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7        64. The circuit of claim 61 wherein the platinum layer has a  
8        thickness of greater than or equal to about 100Å.

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10       65. The circuit of claim 61 further comprising an adhesion layer  
11       between the platinum layer and the substrate, the adhesion layer  
12       comprising at least one of titanium nitride, iridium, rhodium, ruthenium,  
13       platinum, palladium, osmium, silver, rhodium/platinum alloy,  $\text{IrO}_2$ ,  $\text{RuO}_2$ ,  
14        $\text{RhO}_2$ , or  $\text{OsO}_2$ .

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16       66. The circuit of claim 61 wherein the pedestals terminate in  
17       dome-shaped tops.

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19       67. The circuit of claim 61 wherein the pedestals terminate in  
20       hemispherical tops.

1 68. A capacitor comprising:

2 a first capacitor electrode over a monocrystalline silicon substrate;

3 a second capacitor electrode;

4 a dielectric layer between the first and second capacitor electrodes;

5 and

6 wherein at least one of the first and second capacitor electrodes  
7 comprises a roughened platinum layer, the roughened platinum layer  
8 having a thickness of from about 400Å to about 1000Å and comprising  
9 pedestals that are at least about 300Å tall.

10 69. The capacitor of claim 68 wherein the roughened platinum

11 layer comprises hemispherical grain platinum.

12 70. The capacitor of claim 68 wherein the roughened platinum

13 layer is over a surface and is continuous over an area of the surface

14 that is at least about  $4 \times 10^6$  square Angstroms.

15 71. The capacitor of claim 70 wherein the area comprises a  
16 square.

A2  
cont.

1 72. A capacitor comprising:

2 a first capacitor electrode over a monocrystalline silicon substrate;

3 a second capacitor electrode;

4 a dielectric layer between the first and second capacitor electrodes;

5 and

6 wherein at least one of the first and second capacitor electrodes  
7 comprises a roughened platinum layer, the roughened platinum layer  
8 having a continuous surface characterized by columnar pedestals having  
9 heights greater than or equal to about one-third of a total thickness of  
10 the platinum layer.

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12 73. The capacitor of claim 72 wherein both capacitor electrodes  
13 comprise platinum, but only one of the capacitor electrodes comprises  
14 the roughened platinum layer.

15 *72/73*

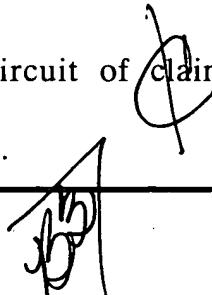
16 74. The capacitor of claim 72 wherein both capacitor electrodes  
17 comprise roughened platinum layers.

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19 75. The circuit of claim 72 wherein the pedestals terminate in  
20 dome-shaped tops.

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conc.

1 76. The circuit of claim 72 wherein the pedestals terminate in  
2 hemispherical tops.



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